CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AGG/2014-15 19.07.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/665/2014-15 Dated: 04.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	19.07.2014

Total Weight of Sample: **5100** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	355	7.0	6.96	93.04	90-100	
4.75	2515	49.3	56.27	43.73	35-51	
2.36	630	12.4	68.63	31.37	24-39	
1.18	500	9.8	78.43	21.57	15-30	
0.3	520	10.2	88.63	11.37	9-19	
0.075	325	6.4	95.00	5.00	3-8	

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	350	6.7	6.73	93.27	90-100	
4.75	2850	54.8	61.54	38.46	35-51	
2.36	615	11.8	73.37	26.63	24-39	
1.18	350	6.7	80.10	19.90	15-30	
0.3	320	6.2	86.25	13.75	9-19	
0.075	385	7.4	93.65	6.35	3-8	

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Shape_T/2013-14 : 17.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/KH/665/2014-15 Dated: 04.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 17.07.2014

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Result : Flakiness Index = **11.85%**

Elongation Index = **13.26%**

Result : Combined Flakiness & Elongation index **25.11%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AIV/2014-15 17.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/665/2014-15 Dated: 04.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	17.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.53	20.73	**20.63**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/S-T/2014-15 02.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/665/2014-15 Dated: 04.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	02.07.2014

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Result : Flakiness Index = **11.58%**

Elongation Index = **13.26%**

Result : Combined Flakiness & Elongation index **24.84%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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01.07.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/KH/665/2014-15 Dated: 04.06.2014

Date of Testing : 01.07.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7075**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	150	150	2.1	97.9	95-100
22.4	2510	2660	37.6	62.4	60-80
11.2	1250	3910	55.3	44.7	40-60
4.75	1020	4930	69.7	30.3	25-40
2.36	695	5625	79.5	20.5	15-30
0.600	600	6225	88.0	12.0	8-22
0.075	550	6775	95.8	4.2	0-8

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05.07.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of the work	: Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/KH/665/2014-15 Dated: 04.06.2014
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	07.06.2014	05.07.2014	8.192	355.5	15.80
2	07.06.2014	05.07.2014	8.285	369.6	16.43
3	07.06.2014	05.07.2014	8.332	385.6	17.14

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TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Amco Layout, Hebbal Sarawar and Balaji Layout in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/KH/665/2014-15 Dated: 04.06.2014

Date of Testing : 05.06.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	120	1.20	1.20	98.80	95-100
20	5250	52.50	53.70	46.30	30-70
10	2155	21.55	75.25	24.75	10-35
4.75	2005	20.05	95.30	4.70	0-5

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